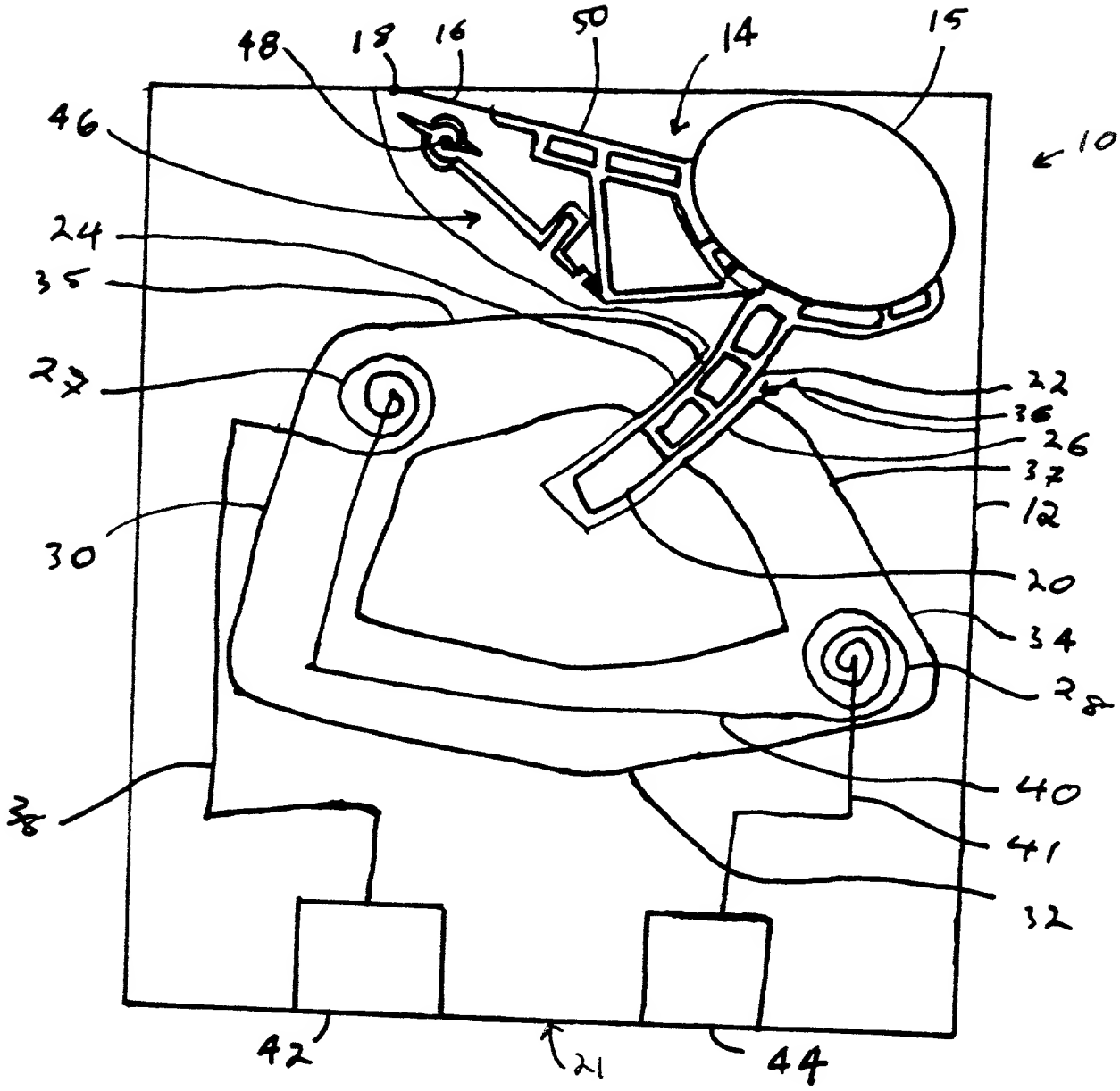
48
18
16
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44

Fig. 1A

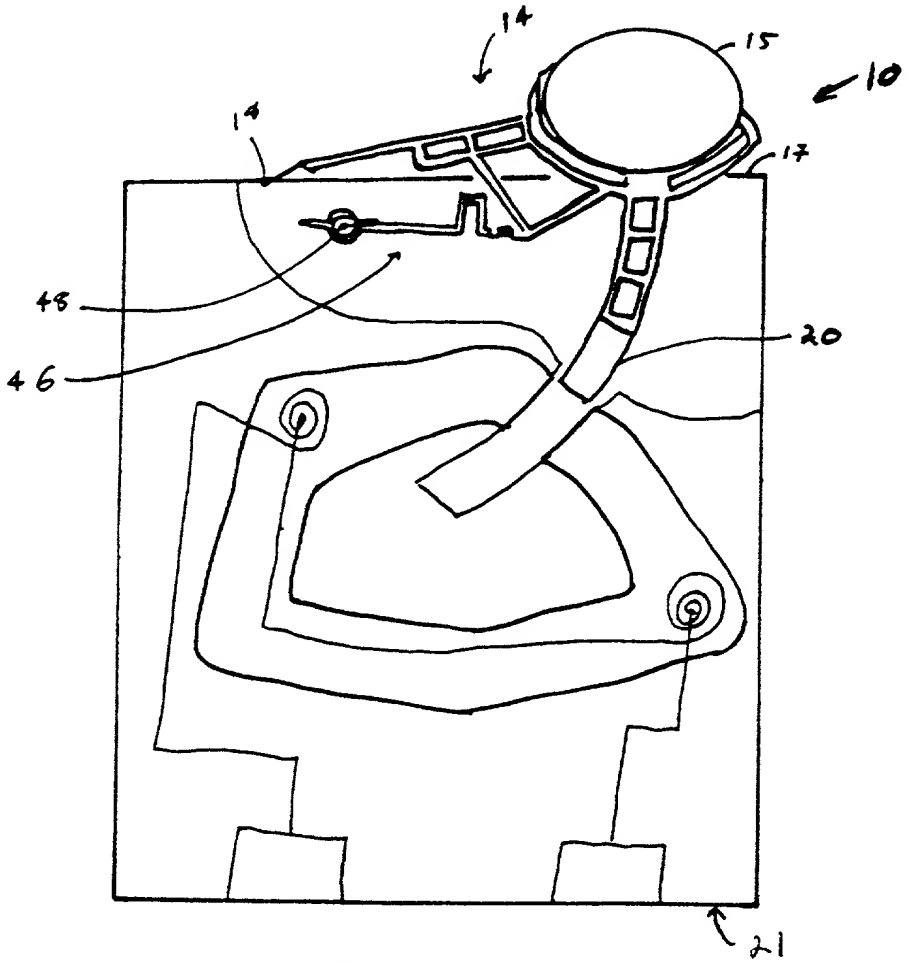


Fig. 1B

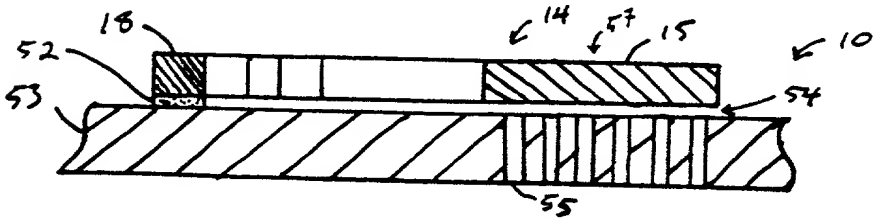


Fig. 1C

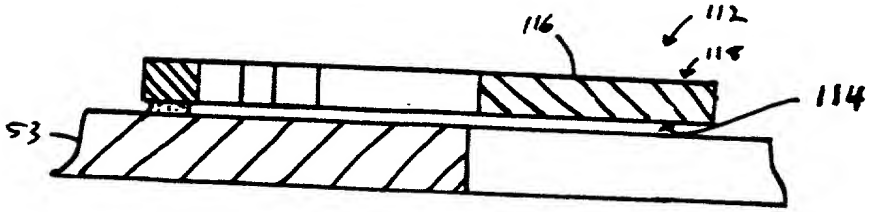


Fig. 1D

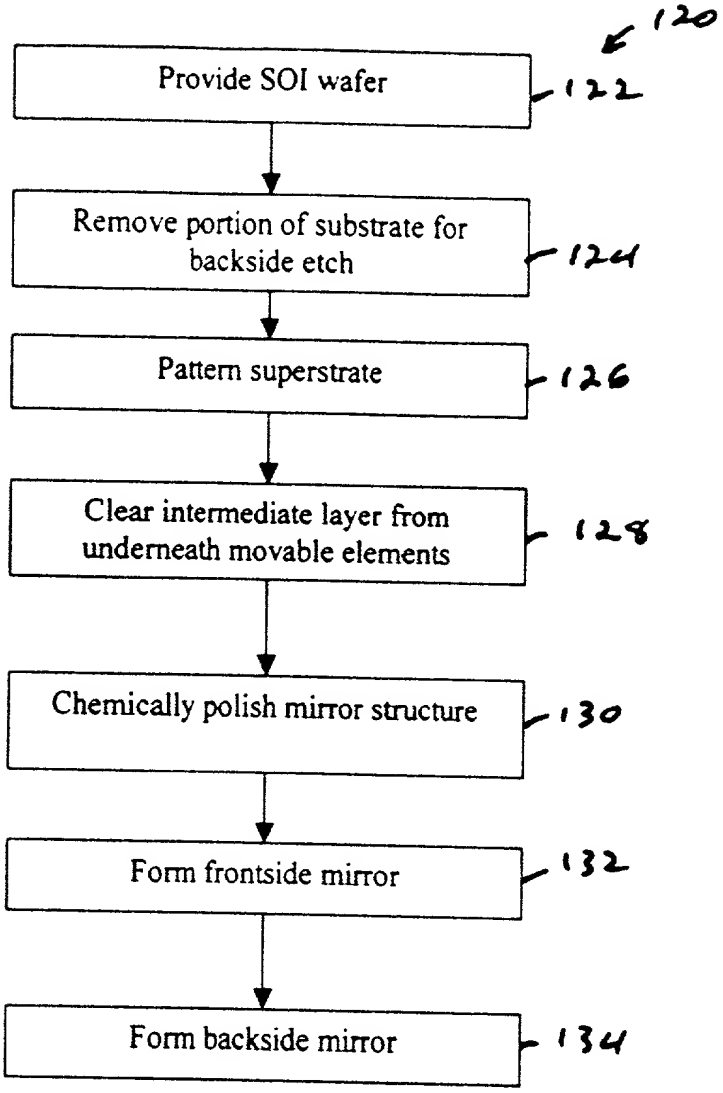

120
Provide SOI wafer
122
Remove portion of substrate for backside etch
124
Pattern superstrate
126
Clear intermediate layer from underneath movable elements
128
Chemically polish mirror structure
130
Form frontside mirror
132
Form backside mirror
134

Fig. 1E

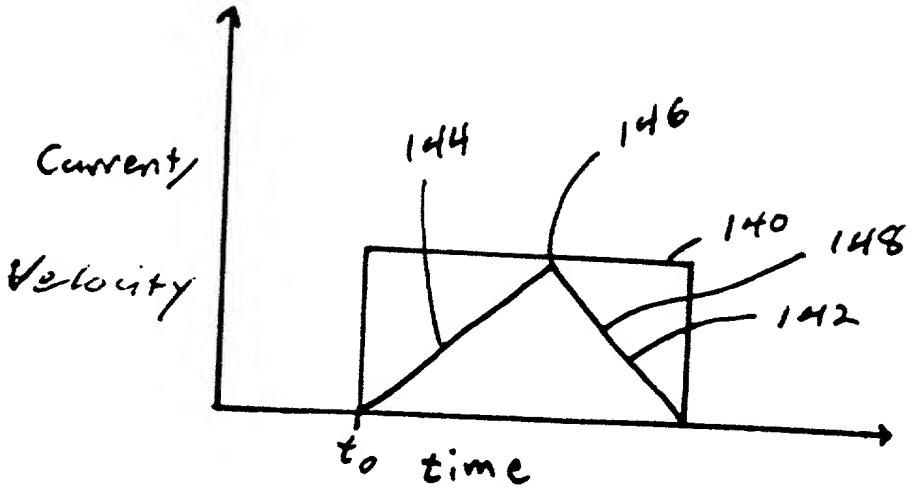

Current/
Velocity
144
146
140
148
142
t_0
time

Fig. 1F

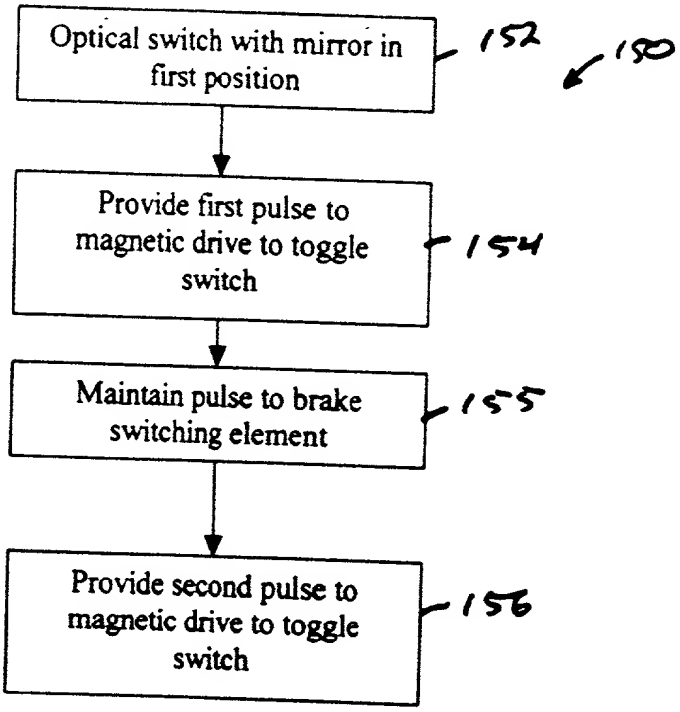

Optical switch with mirror in first position
152
150
Provide first pulse to magnetic drive to toggle switch
154
Maintain pulse to brake switching element
155
Provide second pulse to magnetic drive to toggle switch
156

Fig. 1G

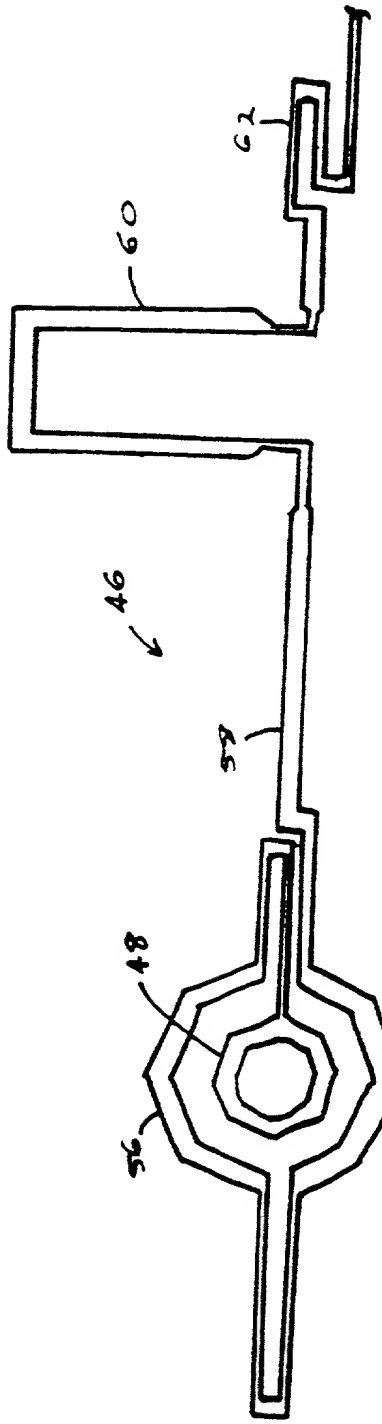


Fig. 2A

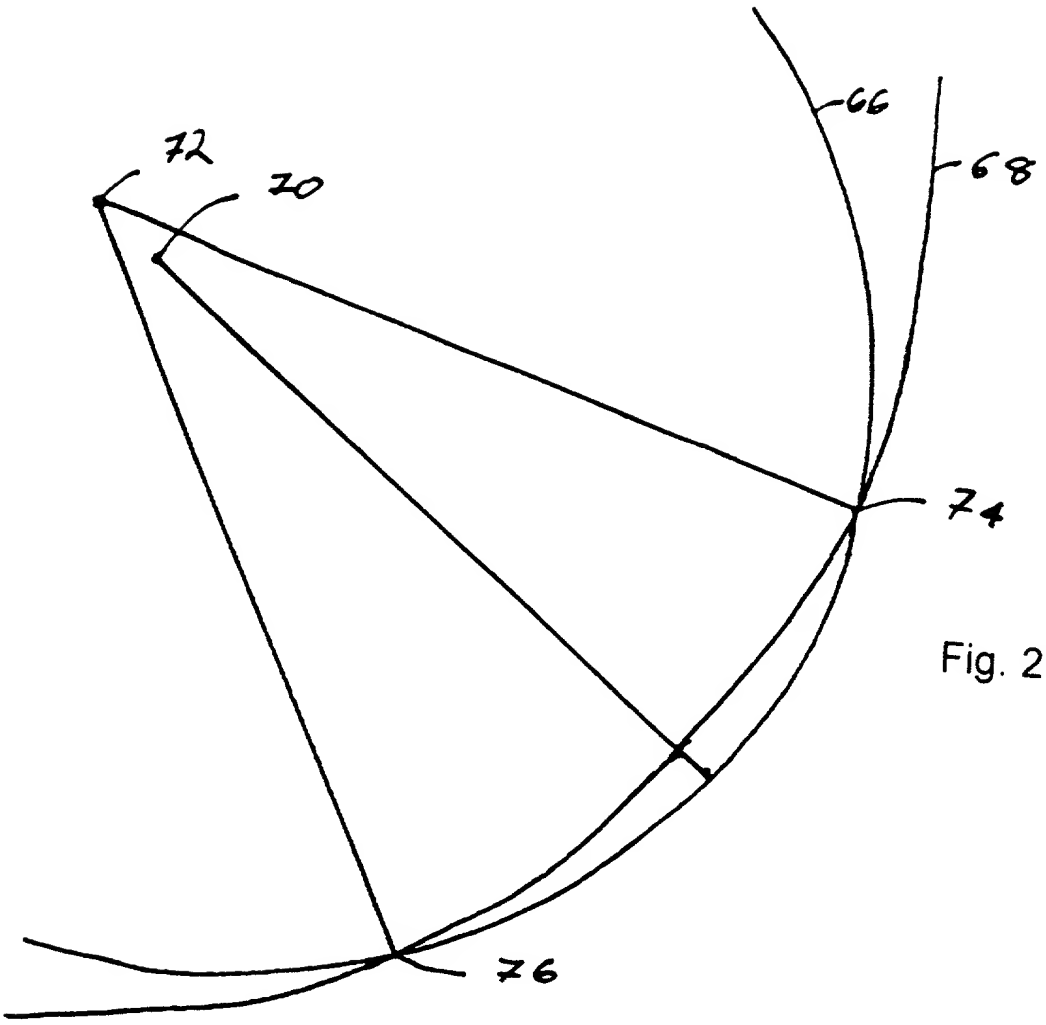


Fig. 2B

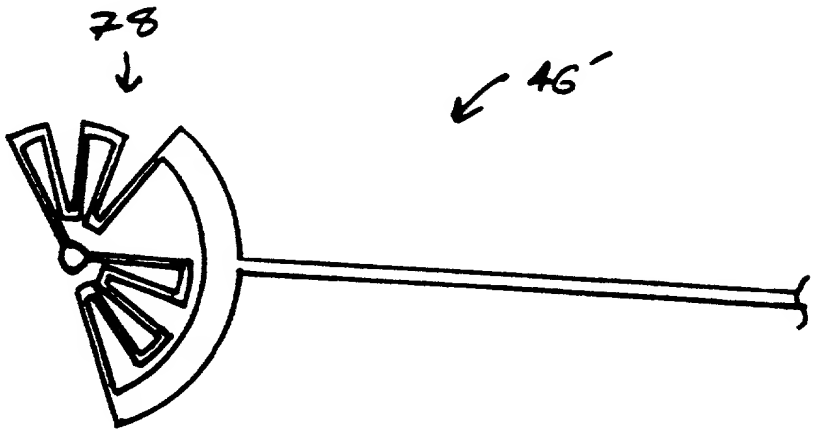


Fig. 2C

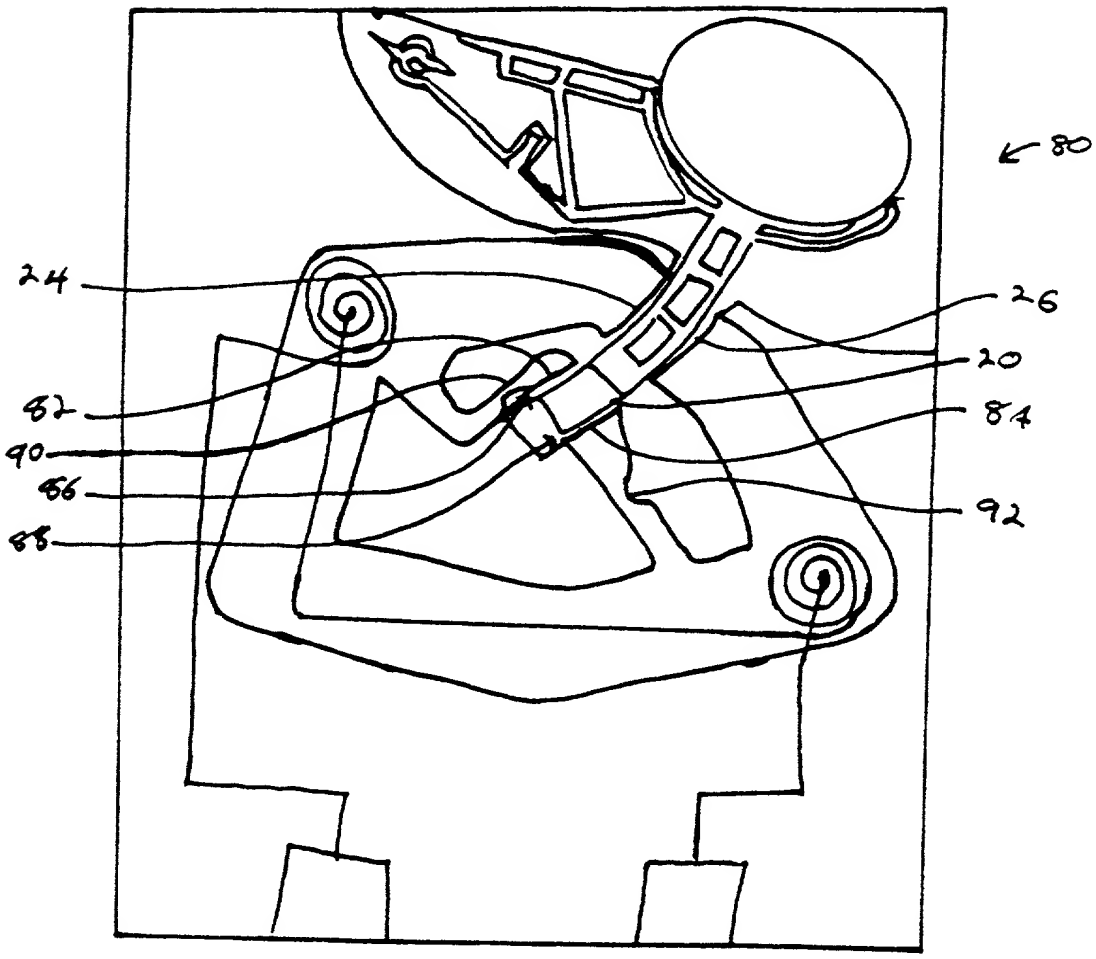


Fig. 3A

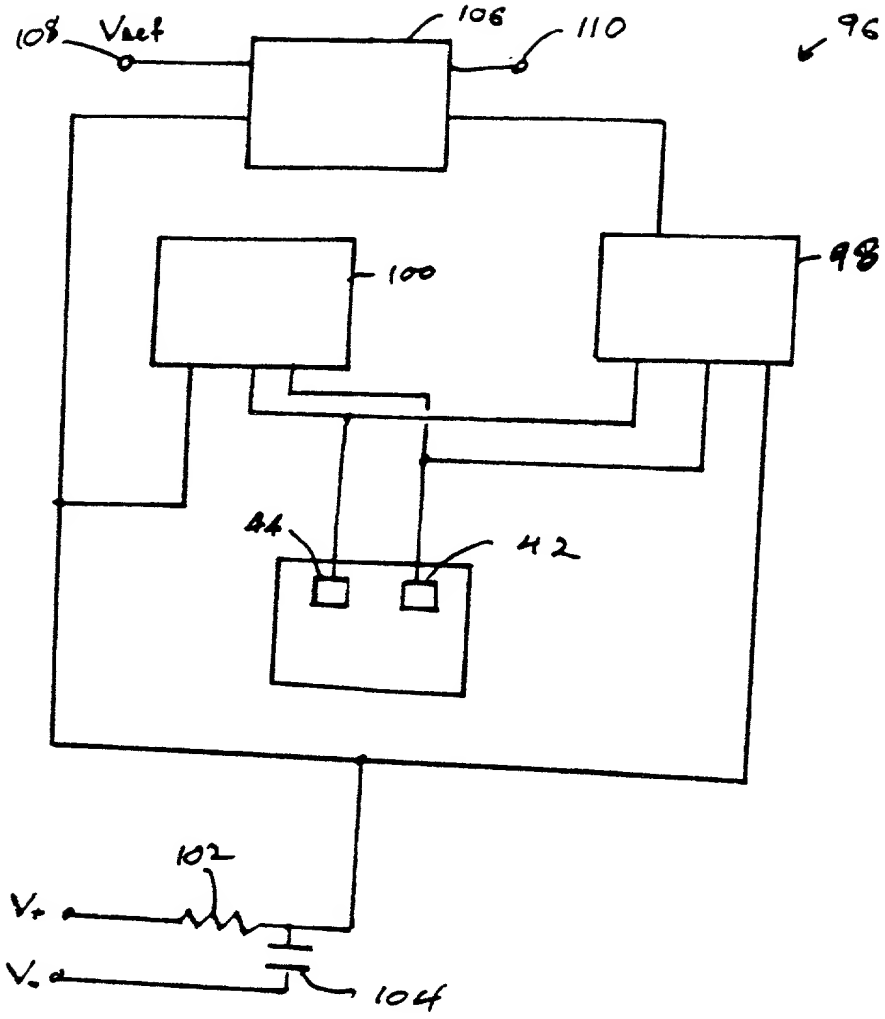


Fig. 3B

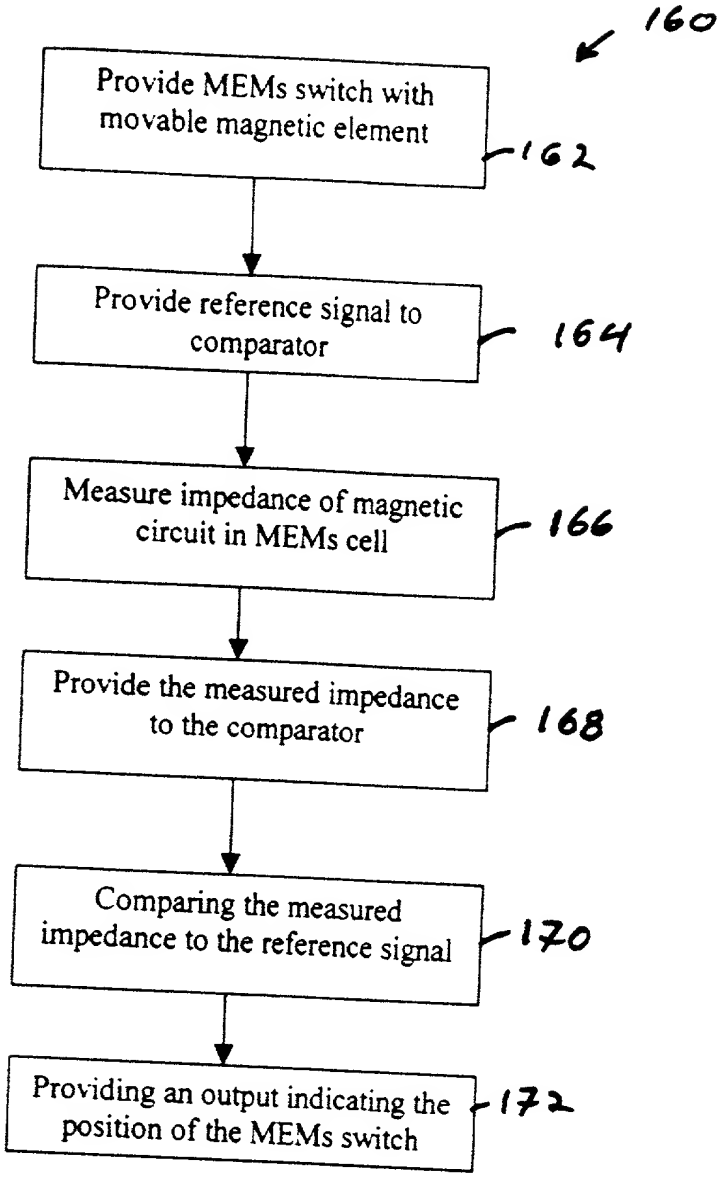

160
Provide MEMs switch with movable magnetic element
162
Provide reference signal to comparator
164
Measure impedance of magnetic circuit in MEMs cell
166
Provide the measured impedance to the comparator
168
Comparing the measured impedance to the reference signal
170
Providing an output indicating the position of the MEMs switch
172

Fig. 3C

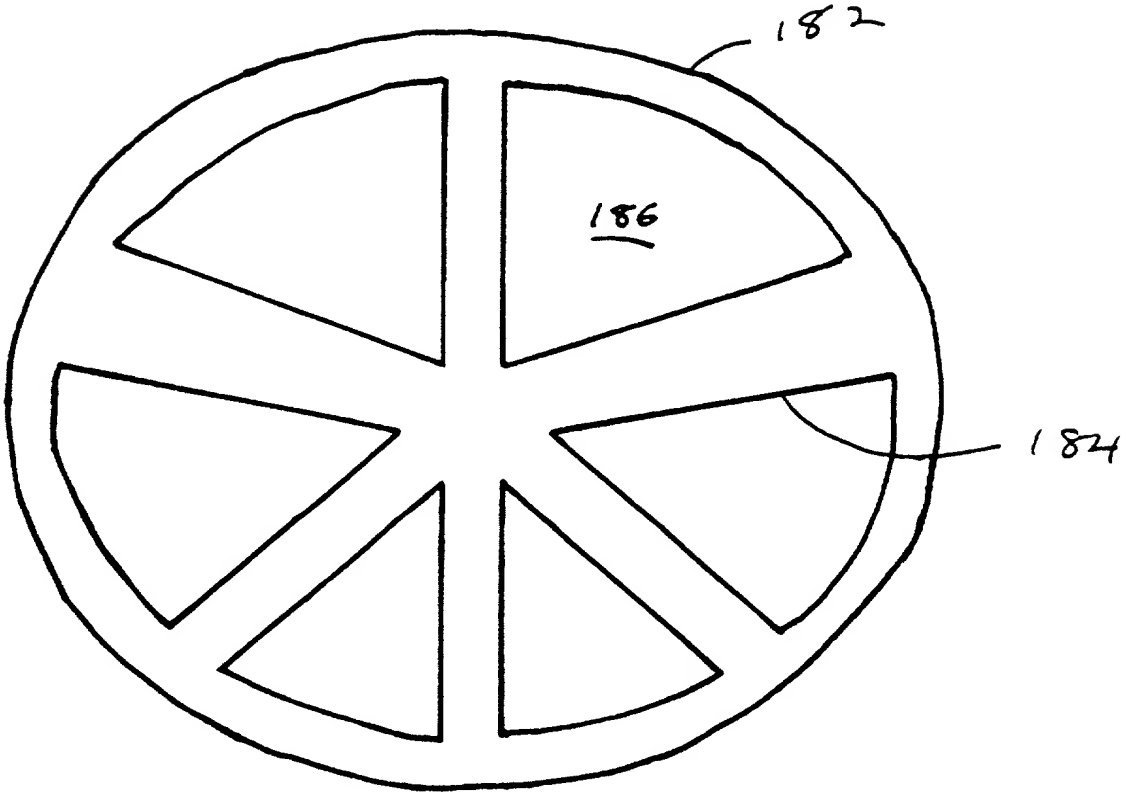


Fig. 4A

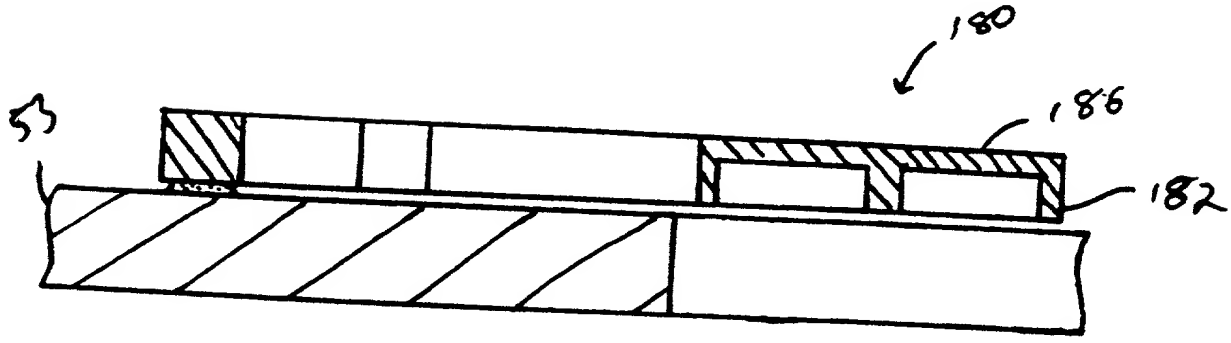
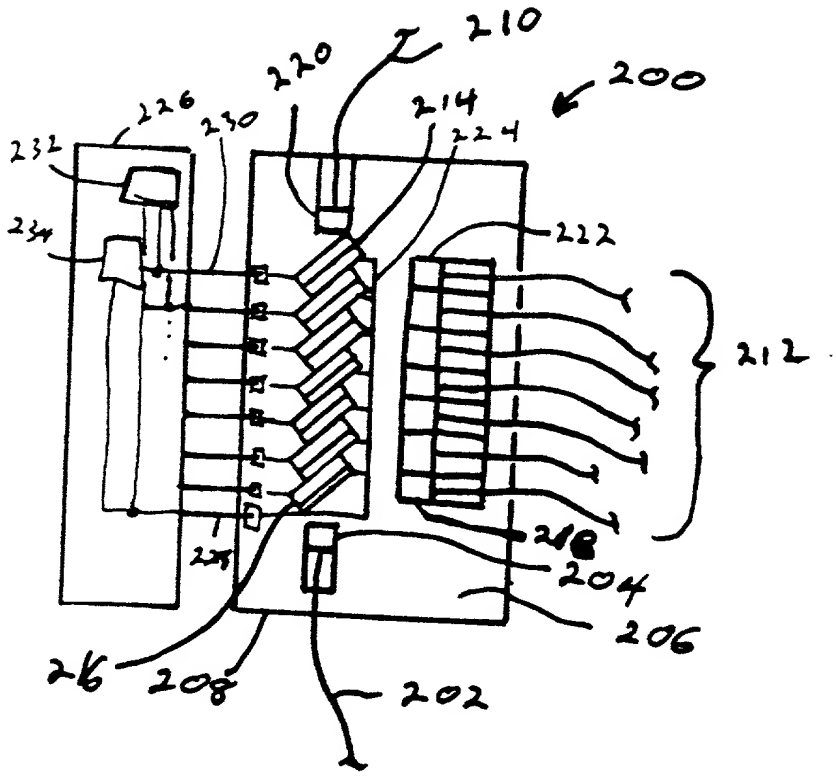


Fig. 4B


210
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226
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214
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234
222
212
218
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208
202

Fig. 5A

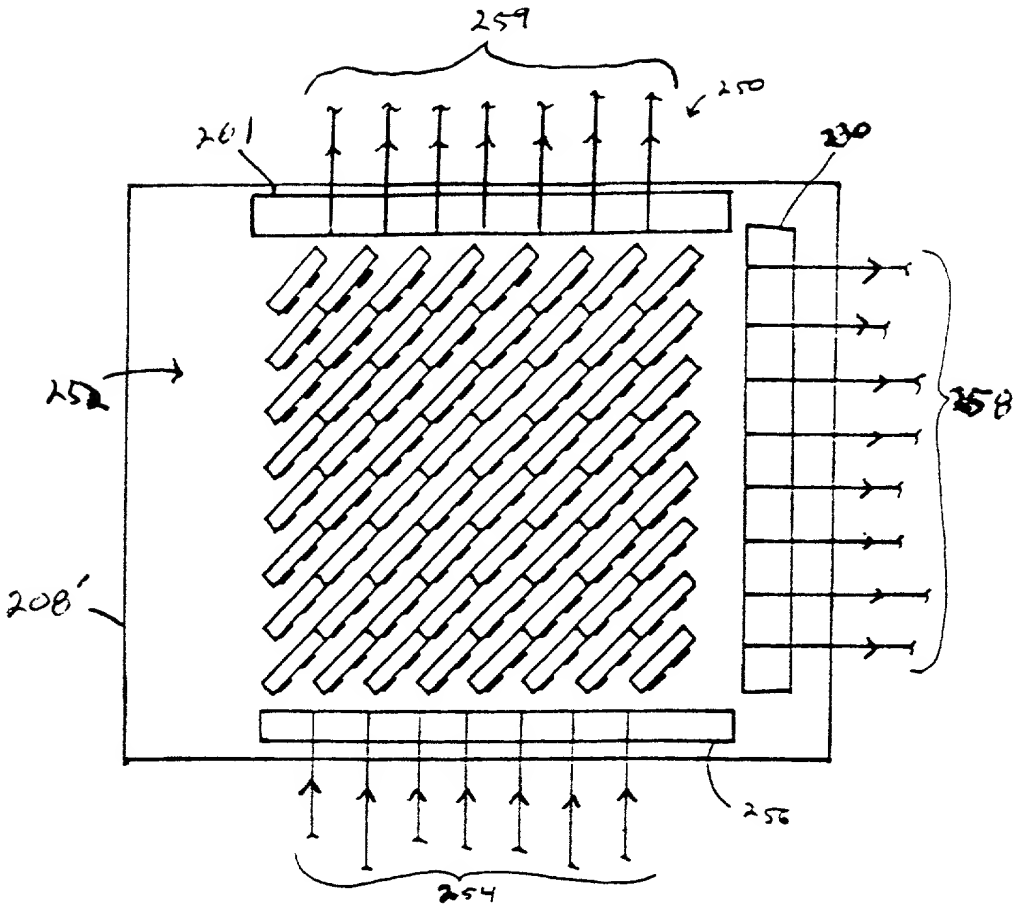


Fig. 5B

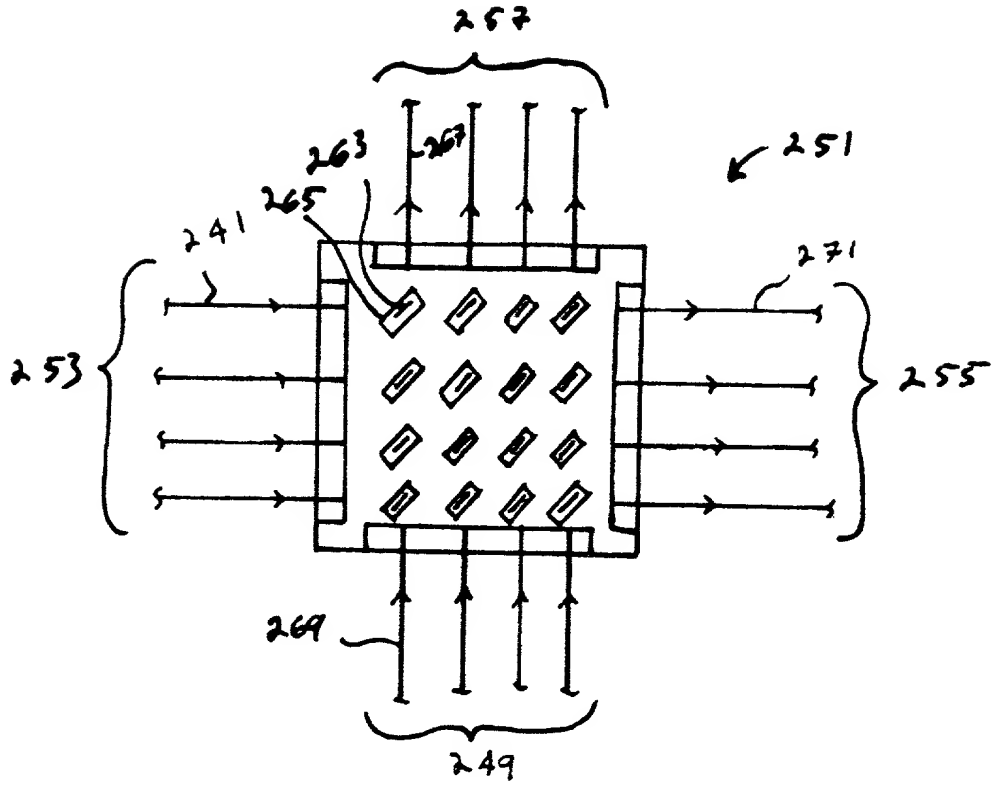
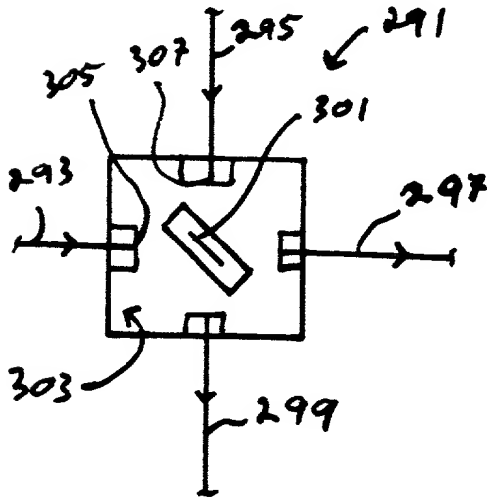

257
263
267
251
265
241
271
253
255
269
249

Fig. 5C


295
291
307
305
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297
303
299

Fig. 5D

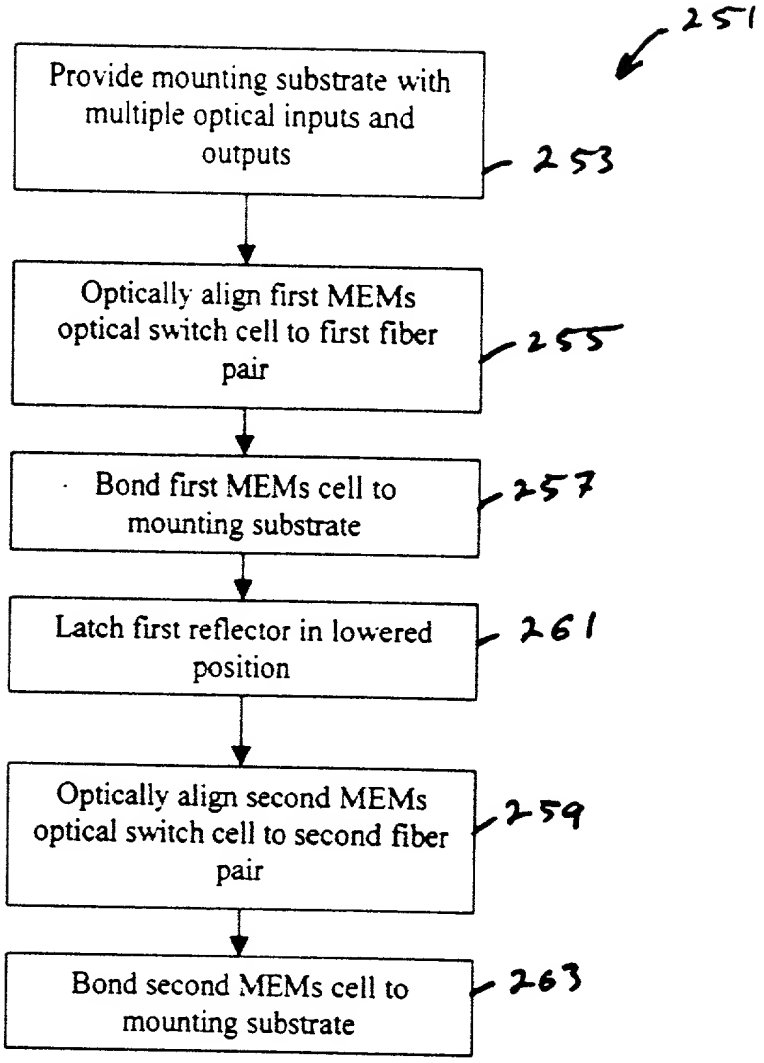
251
Provide mounting substrate with multiple optical inputs and outputs
253
Optically align first MEMs optical switch cell to first fiber pair
255
Bond first MEMs cell to mounting substrate
257
Latch first reflector in lowered position
261
Optically align second MEMs optical switch cell to second fiber pair
259
Bond second MEMs cell to mounting substrate
263

Fig. 6A

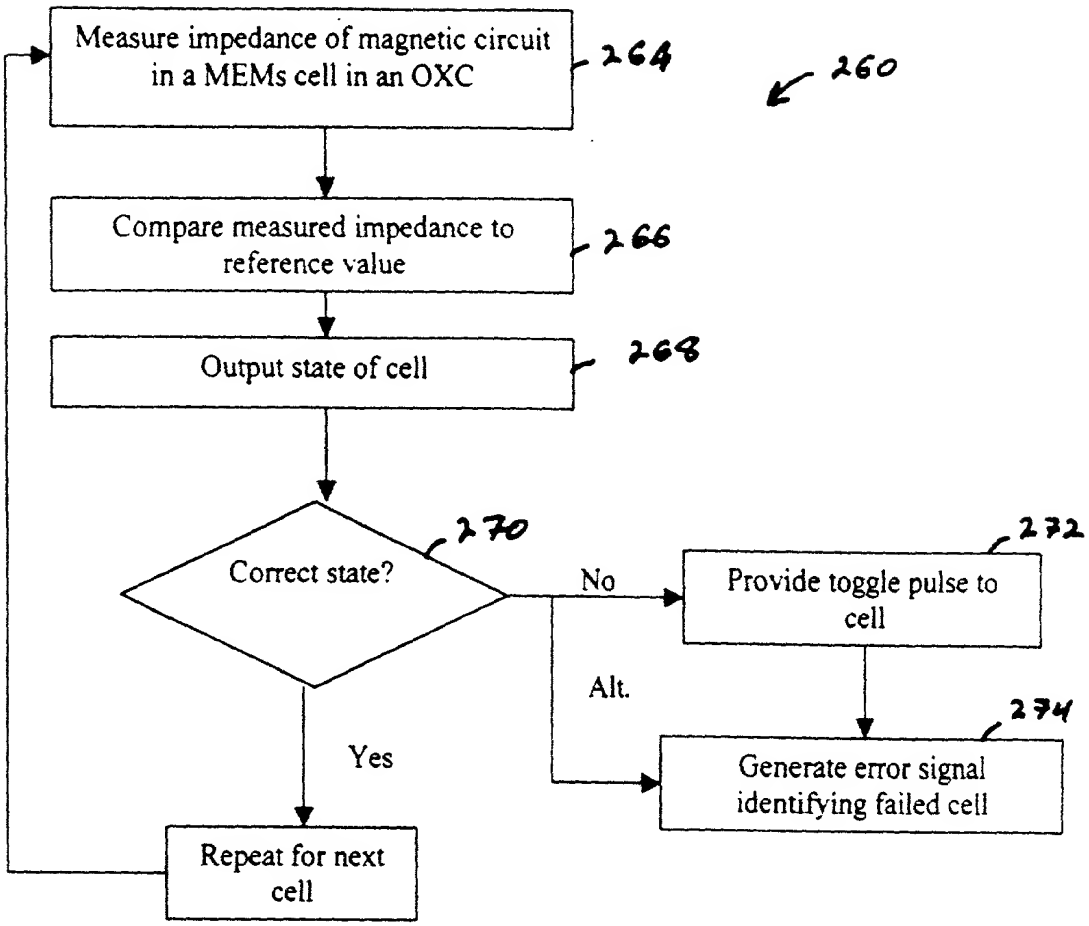
Measure impedance of magnetic circuit in a MEMs cell in an OXC
264
260
Compare measured impedance to reference value
266
Output state of cell
268
Correct state?
270
No
Provide toggle pulse to cell
272
Alt.
Yes
Generate error signal identifying failed cell
274
Repeat for next cell

Fig. 6B

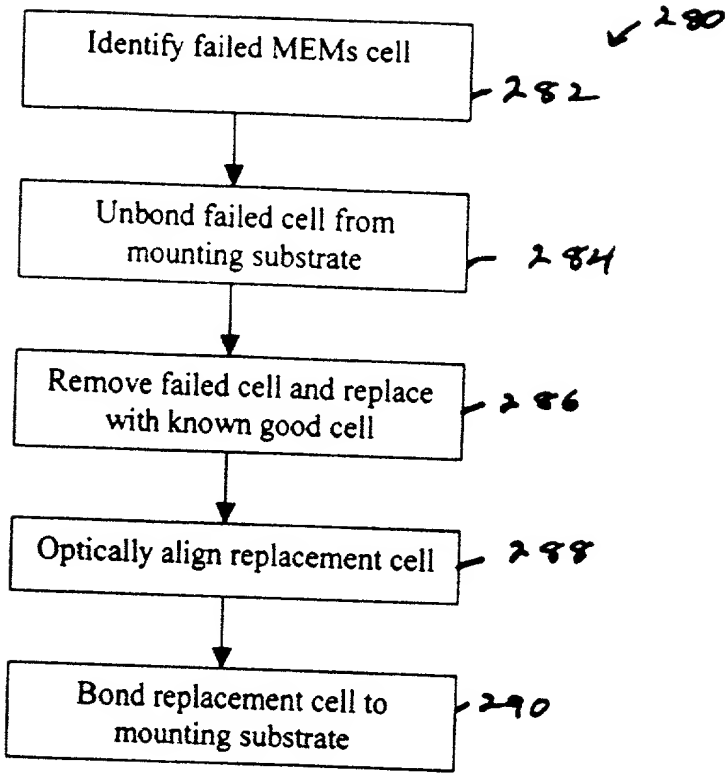
Identify failed MEMs cell
280
282
Unbond failed cell from mounting substrate
284
Remove failed cell and replace with known good cell
286
Optically align replacement cell
288
Bond replacement cell to mounting substrate
290

Fig. 6C